MAY/FY06

HOLSTON ARMY AMMUNITION PLANT

Tennessee

Army Defense Environmental Restoration Program Installation Action Plan

Final 30 August 2006

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Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year Cleanup Program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern, and proposes a comprehensive, installation-wide approach, with associated costs and schedules, to conduct investigations and necessary remedial actions.

In an effort to coordinate planning information between the restoration manager, US Army Environmental Center (USAEC), Holston Army Ammunition Plant, NGB/IMA/MSC, Base Realignment and Closure (BRAC) Division, executing agencies, and regulatory agencies, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all Army installation cleanup programs.

All site-specific funding and schedule information has been prepared according to projected overall Army funding levels and is, therefore, subject to change.

The following agencies contributed to the formulation and completion of this Installation Action Plan for Holston AAP during a planning workshop held on 17 May 2006:

Company/Installation/Branch
BAE Systems
Bay West, Inc.
Engineering & Environment, Inc. for the US Army Environmental Center (USAEC)
ESH/Geo-Solutions
Holston AAP Environmental Restoration, Army (ER,A) Program Manager
SAIC
Tennessee Department of Environment and Conservation (TDEC)
US Army Corps of Engineers (USACE), Mobile District
USACE, Vicksburg District

Acronyms & Abbreviations

AAP	Army Ammunition Plant
ACS	Alternate Confirmatory Sampling
ACSIM	Assistant Chief of Staff for Installation Management
AEDB-R	Army Environmental Database - Restoration
AMC	Army Materiel Command
AOC	Area of Concern
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
C/D	Construction Debris
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CLIN	Contract Line Item Number
CMI (C)	Corrective Measures Implementation (Construction)
CMI(O)	Corrective Measures Implementation (Operation)
CMS	Corrective Measures Study
COE	Corps of Engineers
CS	Confirmatory Sampling
cy	cubic yards
DERA	Defense Environmental Restoration Account (currently called ER,A)
DERP	Defense Environmental Restoration Program
DES	Design
EPA	United States Environmental Protection Agency
EPIC	Environmental Photographic Interpretation Center
ER,A	Environmental Restoration, Army (formerly DERA)
FAP	TDEC Facility Action Plan
FS	Feasibility Study
FY	Fiscal Year
GW	Groundwater
HDC	Holston Defense Corporation
HMX	Cyclotetramethylenetetranitramine
HRS2	Hazardous Ranking System Score
HSAAP	Holston Army Ammunition Plant
IAP	Installation Action Plan
IM	Interim Measures
IRA	Interim Remedial Action
IRP	Installation Restoration Program
IWTF	Industrial Wastewater Treatment Facility
JMC	Joint Munitions Command
LTM	Long Term Management
MEC	Munitions and Explosives of Concern
MCL	Maximum Contaminant Level
MMRP	Military Munitions Response Program
MW	Monitoring Well
NFA	No Further Action
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System

Acronyms & Abbreviations

NPL	National Priorities List
OB/OD	Open Burning/Open Detonation
PA	Preliminary Assessment
PAH	Polynuclear Aromatic Hydrocarbons
POL	Petroleum, Oil & Lubricants
PRG	Preliminary Remediation Goals
RA	Remedial Action
RA(C)	Remedial Action (Construction)
RA(O)	Remedial Action (Operation)
RAB	Restoration Advisory Board
RACER	Remedial Action Cost Engineering & Requirements System
RBC	Risk Base Concentrations
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RDX	Cyclotrimethylenetrinitramine
REM	Removal
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy in place
RRSE	Relative Risk Site Evaluation
SAA	Satellite Accumulation Area
SI	Site Inspection
STMW	Solvent Tank Monitoring Well
SVOCs	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TDEC	Tennessee Department of Environment and Conservation
TDS	Total Dissolved Solids
TNT	Trinitrotoluene
TPH	Total Petroleum Hydrocarbons
TRC	Technical Review Committee
USACE	United States Army Corps of Engineers
USACHPPM	United States Army Center for Health Promotion and Preventive Medicine (formerly USAEHA)
USAEC	US Army Environmental Center
USAEHA	United States Army Environmental Hygiene Agency (currently called USACHPPM)
USATHAMA	United States Army Toxic and Hazardous Materials Agency (currently called USAEC)
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds
VSI	Visual Site Inspection

Acronyms & Abbreviations

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) Acronym Conversions

CERCLA		RCRA
Preliminary Assessment (PA)	=	RCRA Facility Assessment (RFA)
Site Inspection (SI)	=	Confirmation Sampling (CS)
Remedial Investigation/ Measures Feasibility Study (RI/FS)	=	RCRA Facility Investigation/Corrective Study (RFI/CMS)
Remedial Design (RD)	=	Design (DES)
Remedial Action (Construction) (Construction) (RA(C))	=	Corrective Measures Implementation (CMI(C))
Remedial Action (Operation) (Operation) (RA(O))	=	Corrective Measures Implementation (CMI(O))
Long-Term Management (LTM)	=	Long-Term Management (LTM)
Interim Remedial Action (IRA)	=	Interim Measure (IM)

CERCLA and RCRA Underground Storage Tank (UST) Acronym Conversions

CERCLA		RCRA UST
Preliminary Assessment (PA)	=	Initial Site Characterization (ISC)
Remedial Investigation (RI)	=	Investigation (INV)
Feasibility Study (FS)	=	Corrective Action Plan (CAP)
Remedial Design (RD)	=	Design (DES)
Remedial Action (Construction) (RA(C))	=	Implementation (Construction) (IMP(C))
Remedial Action (Operation) (RA(O))	=	Implementation (Operations) (IMP(O))
Long-Term Management (LTM)	=	Long-Term Management (LTM)
Interim Remedial Action (IRA)	=	Interim Remedial Action (IRA)

AEDB-R to Alias Conversion

AEDB-R #	Alias
HSAAP-01	SWMU #24
HSAAP-03	SWMU #14, 26
HSAAP-04	SWMU #17
HSAAP-08	SWMU #25, 97, 98
HSAAP-11	SWMU #30, 33, 36, 37, 42
HSAAP-12	SWMU #25
HSAAP-13	SWMU #38, 39
HSAAP-15	SWMU #43 through 49
HSAAP-16	
HSAAP-17	SWMU #40, 41
HSAAP-19	SWMU #89
HSAAP-20	SWMU #23, 28
HSAAP-21	SWMU #12, 13
HSAAP-22	SWMU #15, 102
HSAAP-23	SWMU #2
HSAAP-25	SWMU #77, 78, 86, 87, 88
HSAAP-26	SWMU #77, 78, 86, 87, 88
HSAAP-27	SWMU #21, 83
HSAAP-28	
HSAAP-29	SWMU #51/52
HSAAP-33	SWMU #18, 19, 20, 29, 35, 50

Installation Information

Installation Locale: Holston Army Ammunition Plant (HSAAP) is located in the city of Kingsport in Sullivan and Hawkins Counties, Tennessee and is approximately 6,000 acres.

Installation Mission: The mission of the installation is to produce RDX and HMX based explosives. “RDX” means Research Department Explosive, also referred to as “cyclonite;” chemical name: cyclotrimethylenetrinitramine. “HMX” means High Melting Explosive, also referred to as “homocyclonite;” chemical name: cyclotetramethylene tetranitramine. HSAAP is the only installation in the U.S. that presently produces these types of explosives. The explosives are boxed or drummed and shipped to other plants for loading into munitions. There are 130 magazines (referred to as X-magazines) that are used for temporary storage. There are eleven Y-magazines; but no explosive storage is allowed in them at the present time, due to their wood structure. Currently, HSAAP does not have a storage mission.

Lead Organization: Army Materiel Command (AMC)

Lead Executing Agencies:

- U.S. Army Corps of Engineers, Mobile District
- BAE SYSTEMS OSI, Inc.

National Priorities List (NPL) Status: Not on NPL.

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status: A Restoration Advisory Board has been established and the first meeting was held on 18 October 1999. There are approximately 15-25 attendees with representatives from the Army, State, and local citizens.

The RAB meets on an as-needed basis. Past activities have included installation tours, training and corrective action discussions, video presentation of one of the SWMU sites and an update from USACHPPM. A community relations plan was prepared by USACHPPM in FY03.

Installation Program Summaries

IRP

Primary Contaminants of Concern: Coal Tar, Explosives, Metals, Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), Pesticides, Herbicides, Polynuclear Aromatic Hydrocarbons (PAHs)
Affected Media of Concern: Groundwater, Soil, Sediment, Surface Water
Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 2005/2010
Funding to date (up through FY05): $19,234K
Current year funding (FY06): $ 514K
Cost-to-Complete (FY07+): $ 2,739K

Installation Program Summaries

MMRP:
The 2 MMRP site are RC with NFA

Cleanup Program Summary

Installation Historic Activity

HSAAP was inactive from 1946 to 1949. Other than these years, HSAAP has been an active installation. The Holston Defense Corporation (HDC) operated the installation from its inception until Dec 1998.

Current Cleanup Program Activity at Holston AAP

Performance-Based Contract awarded at Holston AAP in the fourth quarter of FY04 for remediation at sites HSAAP-08, 13, 26, 27, 29, 30, 33, SWMU 103 at HSAAP-37, SWMUs 70 and AOC F and I at HSAAP-38.

A new area (AOC N) was added to HSAAP-01 in the IRP program at the 2006 IAP workshop.

IRP

- Prior Year Progress: Additional Interim Measures at explosive manufacturing area completed. Work at SWMUs 14 and 26 completed. PBC award anticipated in September 2004.
- Future Plan of Action: Continuation of Performance Based Contract. All sites will be RIP/RC by 2007. RA(O) and LTM will continue through the end of FY15.

MMRP

- Progress to Date: All Preliminary Assessments (PAs) have been completed.
- Future Plan of Action: Both sites are Response Complete with no further funding required.

HOLSTON AAP

Installation Restoration Program

IRP Summary

Total AEDB-R IRP Sites/AEDB-R sites with Response Complete: 30/26

Different Site Types:

1 Burn Area	1 Contaminated Buildings
1 Contaminated Groundwater	1 Contaminated Sediments
1 Explosive Ordnance Disposal Area	1 Firing Range
1 Industrial Discharge	7 Landfills
1 Pesticide Shop	1 Spill Site Area
2 Storage Area	2 Surface Disposal Area
6 Surface Impoundment/Lagoon	3 Underground Storage Tank
1 Waste Treatment Plant	

Most Widespread Contaminants of Concern: Coal Tar, Explosives, Metals, Volatile Organic Compounds (VOCs), Semi- Volatile Organic Compounds (SVOCs), Pesticides, Herbicides, Polycyclic Aromatic Hydrocarbons (PAHs)

Media of Concern: Groundwater, Soil, Sediment, Surface Water

Completed Removal (REM)/Interim Remedial Action (IRA)/Remedial Action (RA):

- HSAAP-15 – IM – 1985
- HSAAP-17 – IM – 1996
- HSAAP-22 – CMI(C) – 1998
- HSAAP-23 – CMI(C) – 2005
- HSAAP-28 - IM - 1991
- HSAAP-29 - IM sparge/vapor extraction – 2001
- HSAAP-33 - Post-closure care plan for Former Solvent Burn tank site – 1998
- HSAAP-34 - IM - 1992
- HSAAP-37 - IM – 1996, CMI(C) - 2004

Total IRP Funding

Prior years (up through FY05):	$19,234K
Current year funding (FY06):	$ 514K
Future Requirements (FY07+):	$ 2,739K
Total:	$22,487K

Duration of IRP

Year of IRP Inception: 1991
Year of IRP RIP/RC: 2005/2010
Year of IRP Completion including Long-Term Management (LTM): 2015

IRP Contamination Assessment

IRP Contamination Assessment Overview

Holston Army Ammunition Plant (HSAAP) has a total of 30 AEDB-R sites of environmental concern. The sites include areas of contamination from removed USTs, coal tar, sanitary and construction debris landfills, earthen ponds, a pesticide shop, burn areas, weapons and firing ranges, fire training sites, vehicle maintenance areas, former spill areas, and miscellaneous storage areas.

Polynuclear aromatic hydrocarbons (contained in coal tar), explosives, pesticides, and benzene, toluene, ethyl benzene and xylenes (BTEX) are the primary contaminants of concern at HSAAP. HSAAP has 103 Solid Waste Management Units (SWMUs) and 12 Areas of Concern (AOCs) identified in the RCRA Facility Assessment (RFA). USATHAMA conducted a Preliminary Site Inspection (May 1992), which confirmed the RFA findings.

Holston has removed all regulated USTs. Three sites were found to be contaminated with petroleum, oil and lubricants (POL) (HSAAP-28, 29, and 34). A site-specific standard was requested for HSAAP-28 (Building 22), a solvent-vapor extraction system was operated at HSAAP-29 (Building 105) until August 2000, and no further action is required at HSAAP-34 since heating oil contamination was adequately removed during excavation.

Investigations and Interim/Removal Actions addressing coal tar have also been completed at several HSAAP sites (primarily at HSAAP-03 and 37).

An extensive suite of chemical analysis has been performed on a site-wide groundwater (GW) monitoring network. This monitoring shows no indication of off-post GW contamination.

IRP Cleanup Exit Strategy

All sites will be RIP/RC by 2010. LTM will continue through the end of FY15.

Previous Studies

2006

- Interim Measures Report, SWMU 97, Coal Tar along Rail Corridor from Area A to Area B (HSAAP-08), Bay West, January 2006

2005

- Project Management Plan, Rev. 02, Bay West. July
- Site Safety and Health Plan, Bay West, February
- Site Contractor Quality Control Plan, Bay West. February
- Site Sampling and Analysis Plan, Bay West, February
- Site Quality Assurance Project Plan, Bay West, February
- Site Investigation-Derived Waste Management Plan, Bay West, February
- Well Plugging and Abandonment Plan, February, Bay West,
- Storm Water Management Plan, Bay West, February
- Environmental Protection Plan, Bay West, February
- Soil Erosion and Sediment Control Plan, Bay West, February
- Interim Measures Field Work Order, SWMU 88 - Pesticide Washdown Area, Bay West, May
- RFI Report, SWMU 51/52 – Drainage Ditch behind Vehicle Wash Pad Areas, Bay West, September
- Interim Measures Report, SWMU 70 – Production Yard 12, Storage Area/Welding Pad (HSAAP-38), Bay West, September 2005
- Interim Measures Report, SWMU 83 – Waste Thermal Treatment Units (HSAAP-27), Bay West, September 2005
- RFI Report, SWMU 97 – Coal Tar along Rail Corridor from Area A to Area B (HSAAP-08), Bay West, September 2005
- RFI Report, SWMUs 22,28,38,and 39 – Flyash Landfill, Sedimentation Pond, and Sodium Nitrate Ponds 1 and 2, Bay Wst/SAIC, September

2004

- IM Report Site-Wide Groundwater Area B (Explosives Production Area), USACHPPM, January
- Additional IM Work Plan Site-Wide Groundwater Area B (Explosives Production Area), USACHPPM, 29 March through 16 April
- RFI Work Plan SWMU HSAAP-020 Rock Quarry landfill, USACHPPM, May
- RFI Report Site-Wide Ground Water 2-13 February , USACHPPM, May
- RFI Work Plan SWMU HSAAP-088 WWII Pesticide Rinsate Washdown Area, USACHPPM, July
- RFI Work Plan SWMU HSAAP-052 (Vehicle Wash Pad inside Building 105) and AOC-C Leaking UST B-105, Service Station, USACHPPM, August

2003

- IM Report SWMU HSAAP-096 Producer Gas Building, Coal Tar Liquor Storage Tanks, USACHPPM, January
- Additional IM Report for Site-wide GW, USACHPPM, August

2003 (cont.)

- Additional IM Report Solid Waste management Unit6 HSAAP-96 Producer Gas Building, Coal Tar Liquor Storage Tanks, USACHPPM, August

2002

- Second Semi-Annual Report, USACHPPM, October
- Interim Measures Work Plan SWMU-096, USACHPPM, October
- Draft RCRA Facility Investigation Report for SWMU 043, Burning Ground, USACHPPM, September
- RCRA Facility Investigation Report for SWMU 096, Producer Gas Building, Coal Tar Liquor Storage Tanks, USACHPPM, August
- RCRA Facility Investigation Report for Site-Wide Groundwater, April-June 2001 and January 2002, USACHPPM, May 1, 2002
- Additional Confirmatory Sampling Report for HSAAP, USACHPPM, March
- Final ACS Report, March
- Final RCRA Facility Investigation Report for SWMUs 004, 014, 103, USACHPPM, February
- RCRA Facility Investigation Report for SWMU 026, USACHPPM, February

2001

- Draft RFI Report for SWMUs 004, 014, 103, USACHPPM, June
- Additional Confirmatory Sampling Report for HSAAP, USACHPPM, April

2000

- RFI Work Plan, USACHPPM, June
- CS Report, USACHPPM, June

1999

- CS Work Plan, USACHPPM, June
- RCRA Facility Assessment Addendum, prepared by TDEC, January

1998

- Site Status Monitoring Report, Building 105 Service Station, HSAAP, Facility I.D. No. 0-370050, prepared by LAW, February

1997

- Holston Closure Report, Former Solvent Burn Tank Unit, prepared by Brown & Root Env., December
- Groundwater Consultation No. 38-EH-5601-97, Relative Risk Site Evaluation, USACHPPM, September
- RFA Release Assessment, USACHPPM, June
- Holston AAP, Groundwater Assessment Report and Annual Groundwater Monitoring Report, prepared by Brown and Root Environmental, February

Previous Studies

1996

- Savannah District, Pre-final RCRA Facility Investigation Report, HSAAP SWMUs 14 & 15, U.S. Army Corps of Engineers, Nov
- Survey Phase RCRA Facility Assessment No. 38-EH-5035-96, HSAAP, USACHPPM, July

1995

- Corrective Measures Study Report, Holston Army Ammunition Plant, Geraghty & Miller, Inc., August

1994

- Groundwater Assessment Nitrate ponds 3 and 4, Holston Army Ammunition Plant, Geraghty & Miller, Inc., December
- Savannah District Pre-Final Environmental Assessment Report, Building 22 Area - Flashing Facility, RUST Environment & Infrastructure, U.S. Army Corps of Engineers, October

1993

- Phase 2, Wastewater Management Study No. 32-24-H13Q-94, Industrial Wastewater Collection System Evaluation, Holston Army Ammunition Plant, USAEHA, November

- Geohydrologic Study No. 38-26-KT17-93, Former Solvent Burn Tank, Holston Army Ammunition Plant, USAEHA, June
- Holston AAP, Bldg. 105, Service Station, Corrective Action Plan and Environmental Assessment Report, prepared USATHAMA under direction of Holston AAP, January

1992

- Hazardous Ranking System Score (HRS2) Summary Report for Holston AAP, USATHAMA, prepared by Advanced Sciences, Inc., July
- Preliminary Site Inspection for Holston AAP, Site Inspection Report No. 91042, USATHAMA, prepared by Advanced Sciences, Inc., May
- Holston AAP, Bldg. 22, Flashing Facility, Corrective Action Plan prepared by USATHAMA under direction of Holston AAP, April

1991

- Draft RCRA Facility Assessment of Holston AAP, prepared for EPA Region IV, A. T. Kearney, Inc., August

1989

- Holston AAP Investigation and Evaluation of Underground Storage Tanks, DA Corps of Engineers, Omaha District, September

1988

- Final Summary of Groundwater Consultation 38-26-0809-87, conducted 6-10 October 1986 and 21-25 April 1987
- POL Contamination in Groundwater near Industrial Landfill, AEHA, April

1987

- Water Quality Engineering Study No. 32-24-0791-88, Evaluation of Alternative Industrial Wastewater Treatment Plant Sludge Disposal Methods, Holston AAP 1987, AEHA, 11/5/1987
- Hazardous Waste Study No. 37-26-0779-87, Investigation of Soil Contamination at the Open Burning Area, Holston AAP, 7-18 April 1986, AEHA, 2/6/1987

1986

- Update of Initial Installation Assessment of Holston Army Ammunition Plant, October 1986 (published date)
- Report AMXTH-IR-A-148 (U), USATHAMA, May
- Phase 5, Hazardous Waste Study No. 37-26-0593-86, Summary of AMC Open-Burning/Open-Detonation Ground Evaluations, March 1981 - March 1985, AEHA, February

1985

- Phase 3, Hazardous Waste Study No. 37-26-0147-84, Summary of AMC Open-Burning/Open-Detonation Ground Evaluations, AEHA, June
- Miscellaneous Reports Concerning Closing the Tar Disposal Site at Area A [HSAAP-22], the Rock Quarry Landfill [HSAAP-01], and Rock Dam Landfill, Dated 1982-1983, Holston AAP, June
- Industrial Hygiene Study No. 55-35-0100-85, Evaluation of Health Hazards at the Gas Producer [Applicable to the hazards of the buried tar], AEHA, June

1984

- 90 Percent Report, Pitch Trap Waste (Coal Tar) Solidification Evaluation, Environmental and Safety Designs, Inc., August
- 90 Percent Report, Floodplain Feasibility Analysis Report, Environmental and Safety Designs, Inc., August

1983

- Engineering Study of Hazardous Discharges from Munitions Production Facilities, Holston Army Ammunition Plant, prepared by Mason & Hanger-Silas Mason Co., Inc., DA Corps of Engineers, Huntsville Division, August
- Phase 1, Hazardous Waste Study No. 37-26-0147-84, Summary of AMC Open-Burning/Open-Detonation Ground Evaluations, AEHA, June

1981

- Engineering Report on Investigation and Evaluation of Pollution Aspects of Abandoned Coal Tar Disposal Site, Area "A", Holston Army Ammunition Plant for Holston Defense Corporation, Kingsport, TN. Memphis, TN., Wegman, Leonard S., Inc., September

1980

- Hazardous Waste Survey No. 81-26-8205-81, Phases 5 through 7, USATHAMA, March
- Installation Assessment of Holston Army Ammunition Plant, Report No. 148, USATHAMA, January

1979

- Hazardous Waste Survey No. 81-26-8205-81, Phases 1 through 4, USATHAMA, July

1975

- Installation Assessment, Holston AAP, TN. Las Vegas, NV. [Note: Also referred to as Environmental Photographic Interpretation Center (EPIC)], EPA, Environmental Monitoring Systems Laboratory, June

HOLSTON AAP

Installation Restoration Program
Site Descriptions

PBC at Holston

SITE DESCRIPTION

This site was created to consolidate the PBC effort at Holston (for funding purposes).

CLEANUP STRATEGY

CLINS 6A-6G, 7, AND 8

PBC covers the following: Miscellaneous support to Holston AAP, review of remedies, and evaluation of ramp down strategies.

STATUS

REGULATORY DRIVER: RCRA-C

RRSE: Low

CONTAMINANTS OF CONCERN: NA

MEDIA OF CONCERN: NA

Phases	Start	End
RFA	199809	200008
RFI/CMS	200409	200409
CMI(C)	200409	200709
LTM	200709	201509

RC DATE: 200709

HSAAP-01
MISC. LANDFILLS

SITE DESCRIPTION

B-200/Flyash Landfill (SWMU 24) was listed in the A.T. Kearney RCRA Facility Assessment as requiring confirmatory sampling.

The Flyash Burial/Coal Tar B-200 (SWMU 24) site is just south of Building 200, Steam Plant at Area B. It is not known when or for how long the site was used as a dumping ground. The size of the site is also unknown. Wastes were discovered in 1987 during construction of the coal handling facility (Project 5852199). The portion of the site used for coal handling activities was covered with compacted clay, topsoil, and re-vegetated in 1987. The site is currently being used for coal storage and handling. Results from a sample collected from an adjacent well indicated the presence of SVOCs below drinking water standards. A downgradient well had no contamination.

STATUS

REGULATORY DRIVER: RCRA-C

RRSE: High

CONTAMINANTS OF CONCERN: Metals, Explosives, VOCs, SVOCs

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199102	199108
CS	199709	200001
RFI/CMS	200409	200505

RC DATE: 200507

AOC-N (Bldg G-2) was added to this site in 2005. This site is located adjacent Building G-2, a re-crystallization building last reported as operating during the Vietnam War. The elevator building associated with Building G-2 has leaked hydraulic fluid (unknown date for beginning of leak).

Formerly this site included Construction Debris Landfill (SWMU 19), Rock Quarry Landfill (SWMU 20), Rock Dam Landfill (SWMU 21) and Interchange Yard/Flyash Landfill (AOC-H). SWMUs 19 and 20 were moved from this site to HSAAP-33 in 2003 because of the consolidation of the RFI for site-wide GW. SWMU 21 was moved from this site to HSAAP-27 in 2002 because of its close proximity. AOC-H was moved to HSAAP-20 in 2002 because of its close proximity and no further action (NFA) status.

A request for approval of a land-use controls remedy [administratively tracked through the TDEC Facility Action Plan (FAP)] was submitted to TDEC for SWMU 24 in May 2005.

CLEANUP STRATEGY

LUCs are in place and will continue to be maintained. There is an active coal pile that prohibits access to this site (SWMU 24).

HSAAP-03
TAR (WWII) NEAR POND 3, AREA B TAR

SITE DESCRIPTION

SWMU 14 was removed from HSAAP-22 to be included in this site. **SWMU 14** is located just across Wilcox Drive to the west of Area A's main production area. The landfill is 40 to 50 feet north of the South Fork of the Holston River. The site is approximately three acres with depths of 10 to 15 feet and was used from 1949 to 1978. Discrete coal tar masses have been observed on the bank of the South Fork of the Holston River along the northwest side of this landfill. A RCRA Facilities Investigations (RFI) was conducted in FY01 to determine the amount of coal tar along the bank and assess the potential for migration of coal tar from the landfill to the river. The report confirmed the location of the coal tar masses and concluded that migration has not occurred from buried coal tar. Therefore, the discrete coal tar masses on the riverbank are likely discards from dumping or the capping and closing of the landfill. The RFI report was submitted to TDEC and was approved. Coal tar that has breached the cap in the NW portion of SWMU 14 has been removed and the cap was repaired.

STATUS

REGULATORY DRIVER: RCRA-C

RRSE: High

CONTAMINANTS OF CONCERN: PAHs

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	199102	199108
RFI/CMS	200101	200505
LTM	200506	201109

RC DATE: 200505

In August 2003, small amounts of tar that had breached the landfill cap were removed and the cap was repaired.

On 3 Oct 03, personnel inspected the area along the riverbank as well as the landfill. No coal tar is migrating into the river or breaching the cap of the landfill.

In September 2005, coal tar was removed and the cap repaired following an inspection.

SWMU 26 is located between Sodium Nitrate Ponds 3 and 4 at Area B. It is not known when or for how long the site was used as a dumping ground. The RCRA Part B Application states that approx. 178 cubic yards of coal tar was dumped down the railroad embankment during World War II and covered with either clay or mixed soil and railroad ballast. Small trees and undergrowth covered the site.

The buried coal tar was discovered in the mid 80s during replacement of a 36-inch water main. At that time, the excavated tar was removed, solidified, and disposed of in the sanitary landfill. The initial discovery revealed a site referred to as the WWII Tar Site, which is approximately 300 feet by 100 feet.

However, as the actual dumping area could have extended throughout the length of the railroad track (about 2 miles at Area B and 6 miles in the corridor), the size or number of sites is not known. Tar has also been found inside Pond 3 (considered part of the same material) and in the area behind Bldg. 200 (HSAAP-01). All these sites are off the embankment of the same rail line.

A RFI report was written in 1996 prior to issuance of corrective action order. A follow-up RFI was conducted to define the limits of the SWMU and assess release potential. The report identified the presence of one large area (73000 sq ft) and one small area (9300 sq ft) mass of coal tar buried at the site to a maximum depth of four feet. Soil contamination is limited to the area that contains buried coal tar. Groundwater data does not indicate a release of hazardous constituents from these coal tar masses. The RFI report was submitted to TDEC and was approved.

Formerly this site included Area B Tar Burial Site (SWMU 25), SWMUs 97, 98, and 102. SWMU 25, 97 and 98 were moved from this site to HSAAP-08 in 2002 because of their close proximity. SWMU 102 was moved to HSAAP-22 in 2002 because of its close proximity and NFA status.

In August 2003, small amounts of tar that had breached the landfill cap were removed and the cap was repaired. An annual inspection program was performed in 2004 and no additional coal tar was observed along the riverbank.

A PBC contract was awarded in Sept 2004. Contract Line Item Number (CLIN) 6 of the PBC contract provides for annual LTM/LTO at all sites.

CLEANUP STRATEGY

These SWMUs are under CLIN 6a.

SWMU 14: Final remedy is land-use controls and cap maintenance. Conduct semi-annual inspections to insure cap integrity.

SWMU 26: Final remedy is land-use controls and cap maintenance. Conduct semi-annual inspections to insure cap integrity.

HSAAP-08
SURFACE IMPOUNDMENTS REQUIRING CONFIRM. (PAGE 1 OF 2)

SITE DESCRIPTION

This site was formerly titled "Surface Impoundments Requiring Confirmation". This area includes the following: Area B Tar Burial Site (SWMU 25), Coal tar along the Area A-Area B Corridor (SWMU 97) and Coal tar contamination south of the recently closed sanitary landfill (SWMU 98). In 2002, SWMUs 25, 97 and 98 were placed in HSAAP-008 because of their close proximity.

Formerly HSAAP-08 included Area B Coal Pile (SWMU 27), Flyash Landfill Sedimentation Pond (SWMU 28), former nitric acid neutralization basin (SWMU 30), former nitric acid neutralization basin (SWMU 33), Unlined spill pond (SWMU 35), Lined spill pond (SWMU 36), and the A-1 equalization basin (SWMU 42). SWMU 27 was moved to HSAAP-036 in 2002 because it is an active site and is not eligible for ER,A funding. SWMU 28 was moved to HSAAP-20 in 2002 because it is classified as NFA. SWMU 35 was moved to HSAAP-33 because of the consolidation of site-wide GW investigation, SWMUs 30, 33, 36, and 42 were moved to HSAAP-11 in 2002 because they are classified as NFA.

STATUS

REGULATORY DRIVER: RCRA-C

RRSE: High

CONTAMINANTS OF CONCERN: SVOCs (PAHs)

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	199102	199108
CS	199709	200101
RFI/CMS	200409	200709

RC DATE: 200709

Area B Tar Burial Site (SWMU 25) is located on the west end of Area B, just to the east of the Closed Industrial Landfill (HSAAP-04/SWMU 17) off Road 1932. The closed site is 15 feet wide, 75 feet long and about 10 feet deep. This site contains approximately 60 cubic yards of coal tar from Area A Gas Producers. The pit received coal tar from 1978 to 1980 when it was closed and covered with clay. Another two feet of clay was added in 1985. Grass is growing as a final cover at the site. The tar is considered a solid waste with hazardous constituents. A RFI was initiated in FY05.

Coal tar along the Area A-Area B Corridor (SWMU 97) was identified by TDEC in 1999 as coal tar contamination along the Area A – Area B corridor. This unit covers the potential areas where coal tar may have been indiscriminately dumped in the past. No specific areas have been located and a visual site inspection will be performed to address a RFI requirement. The visual inspection and the RFI report have been completed. An IM was completed in FY 05.

Coal tar contamination south of the recently closed sanitary landfill (SWMU 98) was identified by TDEC in 1999 as coal tar contamination south of the recently closed sanitary landfill, SWMU 17.

HSAAP-08
SURFACE IMPOUNDMENTS REQUIRING CONFIRM. (PAGE 2 OF 2)

This unit consists of individual small coal tar waste that was indiscriminately dumped on the ground surface on the south side of the road leading to the rock quarry. The visual inspection and the RFI report have been completed. Implemented the IM and submitted the report in 2006.

CLEANUP STRATEGY

Area B Tar Burial Site (SWMU 25): Land-use controls and cap maintenance. Groundwater will be addressed under HSAAP-33 (AOC-GW)

SWMU 97: This site is included in CLIN 3. This site was issued a no further action in Feb 2006.

SWMU 98: This site is included in CLIN 3. This site was issued a no further action in Mar 2006.

HSAAP-13
FLYASH LF, PONDS 1 & 2

SITE DESCRIPTION

This site is located north of Building D-10 in Area B and lies south of Road 1921 and just north of the main line railroad. The site contained two ponds (SWMUs 38 & 39) and was initially used from 1969 to 1972 for liquid sodium nitrate storage. The ponds had a storage volume of 11.1 million gallons.

The ponds were closed in the 1970s. In the fall of 1983, the site was opened as a flyash landfill (SWMU 22) (5.5 acres, 182,410 cy capacity). The landfill was closed in the fall of 1997.

Adjacent to these SWMUs is a sedimentation pond for the flyash landfill (SWMU 28), which may have received runoff from the explosives manufacturing area. The Flyash Landfill (SWMU 22) and the Sedimentation Pond (SWMU 28), which are located on top of SWMUs 38 & 39, are regulated under TDEC's Solid Waste Division.

The RFI report was completed in 2005.

In 2006, information supporting preparation of the Statement of Basis was provided to TDEC, based on the final RFI report.

STATUS

REGULATORY DRIVER: RCRA-C

RRSE: Medium

CONTAMINANTS OF CONCERN: Explosives

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	199102	199108
RFI/CMS	200301	200609

RC DATE: 200609

CLEANUP STRATEGY

This site is included under CLIN 5. Cap maintenance will be conducted. Groundwater issues will be addressed under HSAAP-33 (AOC-GW).

HSAAP-26
PESTICIDE AREAS NEAR B-105, B-148

SITE DESCRIPTION

The following SWMUs are adjacent to Building 148: Pesticide Rinsate Pre-filter Tank (SWMU 77), Pesticide Rinsate Septic Tank (SWMU 78), Pesticide Drain Field (SWMU 86), and Pesticide Washdown Area (SWMU 87). After the mid-70s, HSAAP began the practice of using pesticide container diluents for additional spray work the next day or disposing of it on the same sites where the original material was used (reference letter, Dept of Army, HSAAP, Kingsport, TN S: Installation Pest Management Program Survey No.61-0505-17, HSAAP, Kingsport, TN 6-10 Dec 1976, for Commander, US Army Material Development and Readiness Command, ATTN: DRCSG, 5001 Eisenhower Ave., Alexandria, VA., 3 Oct 1977.)

STATUS

REGULATORY DRIVER: RCRA-C

RRSE: High

CONTAMINANTS OF CONCERN: Explosives

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	199012	199102
CS	199709	199812
IM	200409	200509
RFI/CMS	200201	200608

RC DATE: 200609

The Pesticide Drain Field (SWMU 86) is 50 feet wide and 50 feet long and is now vegetated. The drain field and septic system **(Pesticide Rinsate Septic Tank - SWMU 78)** were constructed during the early- to mid-1970s. The floor drain inside Bldg. 148 was plugged prior to 1980, and the drain in the concrete catch basin outside of the building was plugged in 1984. The only waste the drain field receives is from hand washing in the sink inside Bldg. 148. No pesticide fluid has been disposed of in the sink. There are ~1050 gallons of pesticide-contaminated water remaining in the septic tanks.

Pesticides and herbicides were detected in soil and GW samples collected from the SWMUs (77, 78, 86, and 87) associated with Building 148.

The RFI was conducted in 2003 at SWMUs 77, 78, and 86. Pesticide contamination appears confined to the immediate area of the site. There is no off-site contaminant migration in groundwater.

In 2004, a source removal was conducted (the residual tank liquids, the tanks and associated piping were removed).

An IM was completed in 2005 removing contaminated soil at the drain field.

The **WWII Pesticide Equipment Washdown Area (SWMU 88)** is located in the Area B shop area, south of Road 1966, and southwest of the Service Station (Building 105). The unit was used to rinse off pesticide dispersing equipment between the 1940s and the early 1970s. The unit consists of a pit filled with 6-inch cobbles. The depth of the pit is approximately 2.5 feet and the surface dimensions are about 20 feet wide by 35 feet long.

HSAAP-26
PESTICIDE AREAS NEAR B-105, B-148

Four soil samples were collected from two soil borings conducted at SWMU 88 as part of the FY1999 Confirmatory Sampling at Holston AAP. Pesticides and herbicides were detected in all four samples. Petroleum hydrocarbons were detected in one sample. The results of this sampling, as reported in the November 1999 Confirmatory Sampling Work Plan, indicate that pesticides, herbicides, and petroleum product, have been released to the subsurface soils at the unit and may impact groundwater quality. USACHPPM conducted sampling in Aug 2004 confirming contamination at this SWMU. An Interim Measure Work Plan was submitted for approval and the Interim Measure was initiated in FY05. The RFI was rescheduled until FY06 to assess the post IM conditions. An RFI/IM report was completed in 2006.

CLEANUP STRATEGY

This site is included in CLIN 3. Land-use controls have been implemented to restrict site use to industrial. Groundwater issues will be addressed under HSAAP-33 (AOC-GW).

SWMUs 77, 78, 86, 87: Land-use controls have been implemented.

SWMU 88: Land-use controls have been implemented.

HSAAP-29
LEAKING UST B-105

SITE DESCRIPTION

The former UST (**AOC C**) was located in the central part of Area B. The site is located on about two acres and was built in 1943. The contamination was discovered 16 Jan 1990 when diesel fuel was observed seeping through a crack in the pavement along the roadway near Bldg. 105. Inventory revealed a loss of 106 gallons. Upon investigation, gasoline contamination in the entire general area of Building 105 was also discovered. In 1994, the USTs for gasoline and diesel fuel were removed and aboveground tanks installed (interim measure). During 1995, a corrective action plan was approved and an air sparge/vapor extraction system was installed. Remediation began August 1995. Site-status monitoring reports were required every 6 months. The RCRA Corrective Action Order was issued in 1999. In August 2000 TDEC instructed HSAAP to cease operation of the extraction system at Building 105. There are fourteen MWs in the area, at depths of 12 - 83 ft. The Army sampled the site monitoring wells in Aug 2004 and results indicated that concentrations had remained elevated in a number of wells.

STATUS

REGULATORY DRIVER: RCRA-D

RRSE: High

CONTAMINANTS OF CONCERN: POL

MEDIA OF CONCERN: Groundwater

Phases	Start	End
RFA	199012	199101
CS	199104	199104
IRA	199401	200101
RFI/CMS	200405	200508
CMI(C)	200508	200508
CMI(O)	200509	201009

RIP DATE: 200509
RC DATE: 201009

The RFI report was finalized in FY05.

Vehicle Wash Pad Outside Building 105 (SWMU 51) and Vehicle Wash Pad Inside Building 105 (SWMU 52) - The units are located inside and outside the Service Station (Building 105) at Area B. The units manage wash water that may contain oil or fuel-related compounds. The units consist of a drain grate above a concrete catch basin. Each basin is surrounded by a concrete pad. The concrete basin discharges to the industrial sewer. Prior to connection of the unit to the IWTF, wastewater may have been discharged to a ditch located behind the building. Confirmatory sampling was completed indicating the presence of SVOCs at levels above industrial standards.

CLEANUP STRATEGY

SWMU 51/52: This SWMU is included in CLIN 3. RFI report was completed and information will be submitted to support a SOB. This site was issued a no further action in October 2005.

HSAAP-29
LEAKING UST B-105

AOC C: This SWMU is included in CLIN 5. Conduct four quarters of groundwater monitoring to confirm that the site remains below site specific standards. An NFA will be requested upon completion of groundwater monitoring.

HSAAP-33
FORMER SOLVENT BURN TANK/SW-GW

SITE DESCRIPTION

The site-wide groundwater monitoring program is documented and tracked as part of this AEDB-R site. Site-wide groundwater was begun in conjunction with work on SWMU 50. It includes AOC GW, which is defined as the "co-mingled groundwater contaminant plume". The overall sampling program is designed to provide a comprehensive assessment of groundwater conditions in Area B. SWMUs 18, 19/29, and 20 are included under this site due to groundwater requirements. LTM of their caps (see below) is also included.

The GW RFI work for all SWMUs and AOC GW has been combined into this AEDB-R Site. Closed Sanitary Landfill West of B-155 (SWMU 18), Construction Debris Landfill (SWMU 19), Rock Quarry Landfill (SWMU 20), (possible) sedimentation pond for the sanitary landfill (SWMU 29), and the unlined spill pond (SWMU 35) were incorporated with the former solvent burn tank (SWMU 50) in HSAAP-33 in 2002 because of the consolidation of site-wide GW investigation. In May 2005, the groundwater component of SWMU 96 (HSAAP-37) was included in this site. Any other SWMUs with groundwater related issues will be addressed here as well.

STATUS

REGULATORY DRIVER: RCRA-C

RRSE: High

CONTAMINANTS OF CONCERN: Explosives, VOCs, Fuel, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	199102	199108
CS	199306	199306
IRA	199801	199802
RFI/CMS	199509	200609
CMI(C)	200409	200709

RC DATE: 200709

Five sets of data for all SWMUs and AOC GW collected over 2.5 years generally show no unexpected results (shown below) with the exception of a high level of explosives detected in well monitoring well (MW)99. Additional investigation was done in the vicinity of this well and at other similar structures (H Buildings) in the explosives production area. The results of this additional investigation show two areas of groundwater contamination (explosives).

Closed Sanitary Landfill West of B-155 (SWMU 18) is located in Area B south of Building 9 (Electrical Substation) off Road 1901 and west of Bldg. 155 (Production Administration). The three acre area was used from 1967 to 1984. It was closed on 27 August 1984 and is registered with the county. Approximately 2,160 cubic yards of trash, garbage, bagged asbestos, empty pesticide containers, and fluorescent light bulbs were landfilled at this site. GW monitoring results indicate mercury levels above State standards.

The Construction Debris Landfill (SWMU 19) unit is located in Area B, south of the existing Sanitary Landfill (SWMU 17). It was placed upon the former site of the Sedimentation Pond for the Sanitary Landfill (SWMU 29). The dimensions of the unit are unknown. The base of the pond collapsed due to flooding in 1984. According to facility representatives, the state allowed the facility to fill the area with uncontaminated construction debris. At the time of the visual site inspection (VSI), the area was covered with a large pile of wood. A RFI was initiated in FY05, which includes installation of monitoring wells and a spring survey. The RFI was submitted in FY06.

The Rock Quarry Landfill (SWMU 20) is a two-acre, limestone quarry located at the west end of Area B, adjacent to the Holston River. The site was used as a demolition landfill in the 1940s during construction of the installation. It was closed in 1983 and is registered in Hawkins County as a closed landfill. This site contains six cubic yards of concrete taken from an explosives production building. The concrete was decontaminated by washing with water and treating with lime before burial, however, explosives residue may remain. Other material disposed of in the landfill includes light metal, cinders, small quantities of fly ash, fiberglass insulation, concrete rubble, trees and stumps, and rubber.

The surface water (storm water runoff) at this site was monitored quarterly between 1983 to 1998; showing stable water conditions with no primary or secondary water quality criteria violations among those parameters monitored. Explosives were detected above the tap water risk based concentrations (RBC) in a groundwater sample collected during the 1997 USACHPPM Release Assessment.

A RFI has been completed for Rock Quarry (SWMU 20). An RFI Addendum was completed in FY06.

The **former sedimentation pond for the sanitary landfill (SWMU 29)** is an unlined unit located in Area B, south of the Active Sanitary Landfill (SWMU 17). It received runoff from SWMU 17. In 1984, the dam for this pond collapsed when flooded. The unit was subsequently filled with construction debris and is currently the site of the Construction Debris Landfill (SWMU 19). The dimensions of the unit are unknown. At the time of the visual site inspection, the unit was covered with soil and contained a pile of wood. A RFI was initiated in FY05, which includes installation of monitoring wells and a spring survey. The RFI was submitted in FY06.

SWMU 35, the unlined spill pond, is located south of the lined pond in Area B. The site is less than one acre. Additional CS was performed in Nov. 2000 and no soil contamination was found. Explosive compounds were detected in two wells downgradient from this site. These two wells are part of the site-wide GW monitoring network. TDEC approved the NFA status in February 2000.

HSAAP-33
FORMER SOLVENT BURN TANK/SW-GW

The **former solvent burn tank (SWMU 50)** is located northwest of the bermed burn pan area. The tank was used prior to 1984 and closed under interim status regulations in 1984. It was used for the open burning of explosive-contaminated spent non- halogenated solvents and oils. Closure of the site was approved under current regulations in January 1998 when the tank was removed. The Second Semi-Annual Report in 2002 (USACHPPM) dated 8 Oct 2002 recommended to continue monitoring one downgradient well solvent tank monitoring well (STMW) 15 and discontinue monitoring the other 6 wells adjacent to the unit. This recommendation was consistent with verbal recommendations made by TDEC personnel at the 2003 IAP (April 2002), and again in a conference call on 20 September 2002.

CLEANUP STRATEGY

Site-wide Groundwater (AOC GW): Complete the RFI/CMS Report in FY07. Prepare a Statement of Basis support document.

SWMU 18: The landfill cover will be maintained as necessary under CLIN 6.

SWMU 19/29: This SWMU is included in CLIN 5. The RFI will be completed in FY06. The landfill cover will be maintained as necessary under CLIN 6.

SWMU 20: This SWMU is included in CLIN 5. The landfill cover will be maintained as necessary under CLIN 6.

SWMU 35: This site is NFA.

SWMU 50: This is included in CLIN 5 as part of AOC GW. One downgradient well (STMW-15) will be monitored semiannually.

SWMU 96: Groundwater issues with this SWMU are included as part of HSAAP-33 (AOC-GW). Cap inspections will occur under HSAAP-37.

HSAAP-37
GAS PRODUCER CONTAMINATION

SITE DESCRIPTION

SWMU 96 was the Producer Gas Building Coal Tar Liquor Storage Tanks. This unit was located between Building 10 (Producer Gas Building) and the associated cooling coils in Area A. The unit consisted of aboveground storage tanks surrounded by a scrubbing and cooling unit. The waste was generated from the production of coal gas in Building 10. The unit was closed when the Producer Gas Building ceased operations and the tanks and concrete wall structure were removed in 1996. Visibly contaminated soil was removed from the excavation and replaced with clean soil. A removal action was completed during 1997. Concentrations of benzo[a]pyrene and other SVOCs exceeded EPA Region IX Preliminary Remediation Goals (PRGs) in numerous soil samples collected at SWMU 96 in Feb and May 2002. These exceedances were located near the former location of the coal tar liquor storage tanks and adjacent to the north side of the Producer Gas Facility. This analytical work confirms site observations of a substantial coal tar liquor release to the soil. Much of this soil is located below the groundwater level near one corner of the building, and is releasing hazardous constituents to the groundwater. Arsenic and benzene concentrations slightly exceeded EPA maximum contaminant levels (MCLs) for drinking water in samples collected from the monitoring well located closest to the site.

STATUS

REGULATORY DRIVER: RCRA-C

RRSE: High

CONTAMINANTS OF CONCERN: PAHs, VOCs, SVOCs, Metals

MEDIA OF CONCERN: Soil, Groundwater

Phases	Start	End
RFA	199101	199108
CS	199507	199712
IRA	199612	199702
RFI/CMS	200101	200312
CMI(C)	200407	200409
LTM	200509	201109

RC DATE: 200509

As a result of a presentation of preliminary analytical data in April 2002, on 26 June 2002 the state issued an Interim Measures Order. In October 2002, four monitoring wells were installed as an interim measure to address concerns over potential migration to the nearby Holston River. Perceived delay in the Army's initial response resulted in the issuance of a notice of violation (NOV), which has subsequently been resolved.

In spring 2003 a geophysical survey was conducted in the area between the Producer Gas Building and the Holston River. That survey identified bedrock fractures and degraded (increased electrical conductivity) groundwater between the building and the river. In August 2003, three monitoring wells were installed in the bedrock fractures. At the same time additional soil data was collected beneath the exhauster building and adjacent to the decanter building on the north side of the facility.

This soil data confirmed the presence of coal tar/liquor mass in the soil beneath a portion of the exhauster building and the decanter building on the north side of the facility.

Prior to 1949, coal tar may have been disposed of in the ground at this site. Beginning in 1949, disposal occurred at a site along the Holston River, approximately 2000 to 3000 feet from the facility, at SWMU 14 as well as other locations. The coal tar disposal practices changed in the early 1980s with improvements in the collection system including installation of concrete holding tanks behind Building 8. Partial building demolition and hot spot removal was completed in FY04 as part of Interim Measures.

Coal Tar Tanks (SWMU 4) consisted of aboveground steel tanks that were located behind Building 8. The tanks stored coal tar/coal tar liquor, generated at Building 10 (Area A), prior to burning. The Producer Gas Building (Building 10) began operation circa WWII and operated until fuel conversion was completed for natural gas in 1994. The tanks were removed from the site in 1996. Coal tar and coal tar liquor spillage from the tanks and associated coal tar pit (used for draining water off the top of the coal tar in the steel tanks) in the past has contaminated soil at the site. A RFI was completed in Feb 2002. The report determined that there is a buried discrete coal tar mass in place and it is exposed at the surface. In August 2003 the buried coal tar mass and associated concrete retaining basin were removed. A closure report was submitted to TDEC in 2004.

Coal Tar Site (SWMU 103) is located on the south side of the Area A Steam Plant (Building 8). The unit consisted of a ditch that extended from the rear of Building 8, originating at SWMU 4, to the South Fork of the Holston River. An aboveground tank for filtered water was moved over a portion of the unit in the 1970s during installation of the Building 8 electrostatic precipitators. Little documentation has been found describing the operation of the unit except that blow down from the coal tar tanks (SWMU 4), or lines associated with the steam atomizer burners, once located behind Building 8 drained directly on the ground surface and flowed south to the South Fork of the Holston River. The discharged water may have contained some coal tar and possibly contained contaminants leached from coal tar. This past discharge is evident by the presence of coal tar behind Building 31, adjacent to the installation fence located along the South Fork of the Holston River. However, no visual evidence of the ditch remains between the rear of Building 8 and the installation fence at the top of the riverbank of the South Fork of the Holston River. It is likely that the coal tar at this SWMU originated from these tanks. The ditch no longer exists between the facility fence and Building 8. However, the outfall of SWMU 103 still exists at the bank of the South Fork of the Holston River. A RFI was completed in Feb 2002. Coal tar was identified on the ground surface on the top of the riverbank where the security fence crosses the SWMU. No coal tar masses were identified beneath the ground surface at the unit. Coal tar was identified on the riverbank and riverbed where the unit flowed into the South Fork of the Holston River.

The RFI report was submitted to TDEC and was approved. Interim Measures were initiated in FY05, which consists of collecting discrete masses of coal tar from the top of the riverbank on the south side of SWMU 103.

CLEANUP STRATEGY

SWMU 4: This SWMU is response complete with land-use controls (administratively controlled by the FAP). Inspections for coal tar will be conducted semi-annually and costs will be captured AOC-O.

SWMU 96: This SWMU is included in CLIN 5. The groundwater monitoring of this SWMU will be addressed under HSAAP-33. The cap inspections will occur annually (under CLIN 6).

SWMU 103: This SWMU is included in CLIN 3. Conduct LTM.

HSAAP-38
MISC. STORAGE AREAS REQUIRING CONFIRM.

SITE DESCRIPTION

HSAAP-38 consists of the following SWMUs used for such purposes as to store product materials, treat and store recovered material, or store wastes: Propyl Formate Tanks (**SWMU 7**), Oily Rags Satellite Accumulation Area (SAA) (**SWMU 57**), Waste Oil Accumulation Area (**SWMU 58**), Waste Oil Drainage Pad at Bldg 556 (**SWMU 60**), Respiratory Cartridge SAA (**SWMU 65**), Scrap Metal Yard (**SWMU 69)**, Production Yards (**SWMU 70**), Ball Field Staging Area (**SWMU 74**), T-1 Building Staging Area (**SWMU 75**), Area A Former Coal Pile (**SWMU 90**), Manganese Ore Piles (**AOC F**), Building 8 Explosives Testing Area (**AOC I** - see HSAAP-16 in RC Site Descriptions), and Area B Former Coal Piles (**AOC J**).

STATUS

REGULATORY DRIVER: RCRA-C

RRSE: High

CONTAMINANTS OF CONCERN: Metals, POL

MEDIA OF CONCERN: Soil, Groundwater, Surface Water

Phases	Start	End
RFA	199102	199108
IRA	200409	200609
RFI/CMS	200406	200609

RC DATE: 200609

Formerly this site included Decontamination Ovens (SWMU 83). SWMU 83 was moved from this site to HSAAP-027 in 2002 because of its close proximity.

Production Yards (SWMU 70) consists of laydown storage areas at various locations around the facility. No evidence of release was observed during the VSI or identified in the available file material. Confirmatory sampling at Yard 12 (B550) indicated the need for further investigation, primarily for metals. Interim Measures were completed in FY05, which consisted of soil excavation.

High levels of TPH were detected in the soil at **Manganese Ore Piles AOC F.** Additional sampling was completed at this AOC in October 2001 and reported in the final ACS report (March 2002). Results indicate a need for removal action. The Ore piles were removed in FY05. Interim Measures were initiated in FY05, which consists of excavation of TPH contaminated soils.

At AOC I, the RFI and IM were initiated in FY05.

CLEANUP STRATEGY

Manganese Ore Piles (AOC F): This AOC is included in CLIN 3. Final NFA received March 14, 2006.

MISC. STORAGE AREAS REQUIRING CONFIRM.

Building 8 Explosives Testing Area (AOC I): This AOC is included in CLIN 3. Final NFA was received February 23, 2006.

Area B Former Coal Piles (AOC J): NFA per approval of March 2002 additional CS Report.

SWMU 70: This SWMU is included in CLIN 3. Final NFA was received on October 11, 2005

SWMUs 7, 57, 58, 60, 65, 69, 74, 75, 90: require no further action (per approval of March 2002 additional CS Report).

HSAAP-AOC O
AREA OF CONCERN O – COAL TAR BURIAL

SITE DESCRIPTION

AOC O is a recently discovered site with tar located in Area A adjacent to Building 21. TDEC is including this site as AOC-O under the corrective action portion of the RCRA permit. The site needs to be investigated, and risk assessed.

CLEANUP STRATEGY

Complete RFI in FY06.

STATUS

REGULATORY DRIVER: RCRA-C

RRSE: Low

CONTAMINANTS OF CONCERN: PAHs, VOCs, SVOCS, Metals

MEDIA OF CONCERN: Soil

Phases	Start	End
RFA	200508	200510
RFI	200511	200608
LTM	200611	201509

RC DATE: 200608

IRP No Further Action Sites Summary

AEDB-R #	Site Title	Documentation/NFA date	NFA Date
HSAAP-04	Active sanitary landfill	Other	199108
HSAAP-11	Nitric Acid Spill Pond	Other	199102
HSAAP-12	Tar Burial Pit Area B	Not Eligible for ER,A/BRAC Funding	200001
HSAAP-15	Burning Grnd South of Mfg Area	Other	200304
HSAAP-16	Building 8 Explosives Testing Area	Other	199108
HSAAP-17	Ponds (Sodium Nitrate) 3 & 4	Other	199606
HSAAP-19	STP E of Mfg Area	Other	199108
HSAAP-20	Fly Ash Landfill, Area B Closed	Other	200001
HSAAP-21	Aeration Pond Area A	Not Eligible for ER,A/BRAC Funding	199803
HSAAP-22	Landfill Area A – Coal Tar	All Required Cleanup(s) Completed	199803
HSAAP-25	Pesticide Drain Field Near Bldg 148	Other	199812
HSAAP-27	Sanitary Landfill West of B-155, Closed	NFA letter from State dated Oct 13 2005	2005
HSAAP-28	Leaking UST B-22	Study Completed, No Cleanup Required	199612
HSAAP-30	Firing Ranges	NFA letter received from State dated 28 Apr 2006	2006
HSAAP-34	Heating Oil Leaking UST at B-12 Area A	Study Completed, No Cleanup Required	199604
HSAAP-36	Active Coal Pile South of B-200 Stm Plt	Other	199108
HSAAP-39	Past Sill Sites/Loading Sites	Other	199108
HSAAP-40	Sandblasting/Loading Areas	Other	200012

IRP Schedule

Initiation of IRP: 1991

Past Phase Completion Milestones

1991-1992

- A RFA/CMS was completed by an EPA contractor in August 1991, and confirmed by USATHAMA in May 1992. These were performed at no cost to the installation. These actions initiated the restoration program at HSAAP.

1994-1995

- The USACE performed an Environmental Assessment (RFI) for a former UST site, Bldg. 22 (HSAAP-028). HSAAP does not have record of the total funds received by the USACE for Bldg. 22, nor the date when the USACE became involved in the Bldg. 22 effort.

1991-1992

- A RFA/CMS was completed by an EPA contractor in August 1991, and confirmed by USATHAMA in May 1992. These were performed at no cost to the installation. These actions initiated the restoration program at HSAAP.

1994-1995

- The USACE performed an Environmental Assessment (RFI) for a former UST site, Bldg. 22 (HSAAP-028). HSAAP does not have record of the total funds received by the USACE for Bldg. 22, nor the date when the USACE became involved in the Bldg. 22 effort.

1994

- During September 26-30, 1994, the installation received funding for a Risk Assessment at Ponds 3 and 4, HSAAP-17 ($167,068). The pond material was removed and the ponds were capped. The site has been vegetated. Groundwater is currently being monitored under a NPDES permit.
- On September 30 of 1994, the installation received funding ($245,848) for the design and installation of a remediation system for POL contamination at a former UST (Bldg. 105). An airsparge/vapor extraction system was installed in August of 1995.
- During late FY94, the USACE received funding for a RFI at three Coal Tar Sites (WWII site at Area B, and SWMU 14 and 15 at Area A). HSAAP does not have record of funding received by the USACE.

1995

- On March 31, 1995, the installation received funding ($302,520) for groundwater monitoring at ER,A sites. Also, funding was received for two removal efforts: $992,574 for removal of Pond 3, and $487,038 for coal tar removal near Bldg. 8A (SWMU 96) and 10A, as listed in AEDB-R.

1995 (cont.)

- On July 7, 1995, the installation received $397,866 to develop a closure plan, permit application and post-closure care plan for the former solvent burn tank at Area B. The closure plan was prepared, approved and sampling conducted with close State guidance and in accordance with the closure plan.
- On September 26, 1995, the installation received $45,204 to prepare a request for a site-specific standard at Bldg. 22 (AOC E).
- Also on September 26, 1995, the installation received $393,369 for an interim removal action and a Corrective Action Plan for the Area A coal tar sites HSAAP-22. Coal tar has been removed from the banks of the Holston River. The Corrective Action Plan is being prepared based on the USACE prepared RFI (draft report obtained in June 1996).
- During FY95, the USACE received S&A funds for two RFIs in progress (Area A Coal Tar Sites and World War II Coal Tar Site).

1996

- On July 3, 1996, the installation received $47,382 to continue the operation and maintenance of the Bldg. 105 solvent-vapor extraction system, SWMU 51/52 / HSAAP-29 subsequent to a removal action.

- During FY96, the USACE received approximately $48K to design a removal action for coal tar at SWMU 15.1996 Removal action performed subsequent to design. The USACE also received S&A funds for two RFIs (Area A Coal Tar Sites and World War II Coal Tar Site) in progress during FY96.

1997

- During FY97, completed Survey Phase RCRA Facility Assessment (USACHPPM Project # 38-EH-5035-96).
- May-September 1997 - Completed Sampling Visit Phase, RCRA Facility Assessment, and Release Assessment (USACHPPM Project # 38-EH-5694-97).

1999

- CS Work Plan - Nov 1999

2000

- CS Report/RFI Work Plan - April 2000
- RFI Work Plan - Aug 2000
- RFI Sampling & Analysis plan - Aug 2000

2001

- RFI of Coal Tar Contamination in Area A associated with SWMU-4, SWMU-14 and SWMU-103.
- Additional confirmatory sampling report (HSAAP-08, HSAAP-23, HSAAP-29, and HSAAP-38).
- Initiation of RFI of site-wide groundwater.

2001 (cont.)

- RFI of coal tar contamination of Area A near SWMU 4, 14, 103 and interim measures Work Plan.

2002

- Additional Confirmatory Sampling - Mar 2002
- RFI for Site-wide GW - May 2002
- RFI SWMU 96 Prod Gas Bldg , Coal Tar Liquor - Aug 2002

2003

- RFI for Site-wide GW - Aug 2003
- Removal actions - three coal tar cleanups (HSAAP-03 (2), HSAAP-37) - Aug 2003
- RFI for Pesticide Site (HSAAP-26) - Sept 2003
- RFI for Producer Gas Site (HSAAP-37) - Oct 2003
- Drainage Ditch Study (HSAAP-02) - Nov 2003

2004

- Demolition of Building 10A (HSAAP-37)
- Removal of Pesticide Tanks (HSAAP-26)

2005

- RFI, CMI(C) – HSAAP-23, 29
- IM – HSAAP-26, 27
- RFI – HSAAP-01, 03

2006

- RFI – HSAAP-13, 26, 27, 30, 33, 38
- IM – HSAAP-38
- CMI(C) – HSAAP-30

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates: NA

Schedule for Next Five-Year Review: 2010

Estimated Completion Date of IRP (including LTM phase): 2015

Holston Army Ammunition Plant IRP Schedule
(Based on current funding)

AEDB-R#	PHASE	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+
PBC at Holston	RA(C)									
	LTM									201509
HSAAP-AOCO	LTM									201509

Prior Years Funds

Total Funding up to FY04: $18,819K

Year	Site Information	Expenditures	FY Total
FY05		$415K	**$415K**

Total Prior Year Funds: $19,234K

Current Year Requirements

Year	Site Information	Requirements	FY Total
FY06	PBC	$438K	
	AOCO	$ 76K	**$514K**

Total Prior Year Funds: $514K

Total Future Requirements: **$2,739K**

Total IR Program Cost *(from inception to completion of the IRP):* **$22,487K**

Community Involvement

The first meeting of the Restoration Advisory Board (RAB) was held on 18 October 1999. There were approximately 15-25 attendees representing the Army, State, and local citizens.

The RAB meets on an as-needed basis. Past activities have included installation tours, training and corrective action discussions, video presentation of one of the SWMU sites and an update from USACHPPM. A community relations plan was prepared by USACHPPM in FY03.

In the summer of 2002, HSAAP received significant community comments on the Finding of No Significant Impact announcement concerning the Transit Mix Project. Air pollution (particulates) was of primary concern. Waste water and storm water runoff were also issues.

RAB members attended the Installation Action Plan Workshops in December 1999, September 2000, August 2001, April 2002, November 2002, and September 2003.

The RAB members meet during the IAP workshops held once per year.